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string. Besides the heap of minerals, from the evidence discovered there was no doubt in the minds of the searchers that Mr. Verhoeff had been there and had fallen into one of the thousands of dangerous gulches which that glacier possessed, and was killed. Having completely traversed the country that was in any way accessible to Mr. Verhoeff, and convinced themselves of the futility of any further search, the expedition returned to McCormick Bay on the night of August 23, and on the following day started on the homeward journey.

GEOLOGY AND PALEONTOLOGY.

The Elevation of Mount Orizaba or Citlaltepetl.—Citlaltepetl (Star Mountain) is an old volcano situated on the eastern margin of the Mexican table land, about 19° north of the equator and about seventy-five miles from the Gulf. The slopes of the mountain have been known and occupied by man for many centuries, yet from a scientific standpoint they are comparatively unknown.

In July, 1891, a party consisting of Henry E. Seaton, Bloomington, Ind., botanist; A. J. Woolman, South Bend, Ind., icthyologist; W. S. Blatchley, Terre Haute, Ind., entomologist; U. O. Cox, Mankato, Minnesota, ornithologist, and the writer, visited the Star Mountain, making interesting collections of the varied forms of life found on its slopes. The different members of the party will in due time report on the work done in the different departments.

The question of the highest elevation in North America seems to lie between Citlaltepetl in Mexico and St. Elias in Alaska, so that considerable interest centers on the determination of the exact elevation of these mountains.

Different observers vary considerably in their estimates of the elevation of Citlaltepetl; among many the following may be noted:

A. Von Humboldt, 17,375 feet. A Mexican scientific commission, 17,664 feet. Ferrer, 17,879 feet, which is the elevation given by some German geographers. Abmaran, 17,916 feet. Prof. A. Heilprin, 18,205 feet. Dr. Franz Kaska, 18,270 feet.

Prof. Heilprin used an aneroid barometer, adjusted by comparison with a standard mercurial barometer. The elevation of the City of Mexico was determined by railway levels, and the elevation of the summit of the mountain above the City of Mexico was determined by comparing nearly simultaneous barometrical readings, taken one on mountain and one in the city, about 125 miles away. The distance between the two localities is considerable and the atmospheric conditions are usually very diverse, yet the results are very close to those of Dr. Franz Kaska who used two mercurial barometers, of mountain form, read at about the same time, one on the summit of the mountain and one at Chalchicomula about twenty miles away. The elevation of the datum point in Chalchicomula was determined by railway levels.

From the datum point used by Dr. Kaska, assisted by Mr. O. G. Bunsen I carried a line of spirit levels up to the 14,000 feet level. Higher it did not seem practicable to go, on account of snow, steep slopes, high winds, etc. From that elevation we made two ascents, one on July 29, 1891, and one on August 3, 1891. I used an aneroid barometer adjusted by comparison with a standard mercurial barometer. On each ascent the barometer was read at the summit about 2 o'clock P. M., and at the 14,000 feet level at about 5 o'clock P. M. The readings for July 29, reduced by the method of the U. S. Coast Survey, indicated a difference in elevation between the 14,000 feet level and the summit of 4139.20 feet, while those of August 3 by the same method indicated a difference of 4219.12 feet. The average of these results 4179.16 feet plus 14,000 feet gives a total elevation of 18,179.16 feet, a result surprisingly near that of Prof. Heilprin. Prof. Heilprin estimated that his station was 120 feet below the summit. My aneroid barometer indicated that it was only eighty-six feet below the true summit; subtracting this difference of thirty-four feet from Prof. Heilprin's figures, and the two results 18,171 feet and 18,179 feet differ by only 8 feet.

The atmospheric conditions on July 29 and August 3, to the senses seemed identical, yet the difference as shown by the barometer was considerable, and the barometer, when checked with the spirit level elevations, gave varying results. These variations, while not wide, gave rise to a feeling of uncertainty as to the trustworthiness of the barometer in determining such high elevations.

In April 1892, assisted by Señor E. O. Moreno, I measured a base line 1550 feet long, near the 13,000 feet level and obtained the angles necessary to determine the elevation of the peak above each end of the base line, a large cross planted on the summit forming a definite point of observation. The results show an elevation of 18314.357 feet, as follows:

Railway levels from tide water at Vera Cruz to datum in Chalchicomula	8313.571 feet.
Spirit levels from Chalchicomula to Station A.	4696.188 feet.
Triangulation from Station A.	5302.267 feet.
Elevation via Station A.	18,312.026 feet.
Spirit levels from Chalchicomula to Station B.	4720.569 feet.
Triangulation from Station B.	5282.146 feet.
Elevation via Station B.	18316.687 feet.
Mean elevation	18314.357 feet.

It was a source of great satisfaction to Dr. Kaska and myself to find our results, obtained by different methods, so closely confirmatory and not widely different from the results obtained by Prof. Heilprin and myself with aneroid barometers. From the above results it seems safe to consider Mount Orizaba or Citlaltepetl as being about 18,300 feet high.

Popocatepetl (Smoking Mountain) about 100 miles west of Citlaltepetl is thought by many to be higher than the Star Mountain; but one who has ascended both peaks would certainly consider Citlaltepetl the higher elevation. Prof. Heilprin's observations made Popocatepetl about 700 feet lower than the Star Mountain, and my barometer indicated about the same difference, so that the honor of being the culminating point of North America clearly lies between the Star Mountain of Mexico and Mount St. Elias of Alaska.—J. T. SCOVELL, Terre Haute, Indiana.

Seeley on the Sauropterygia.—In the Proceedings of the Royal Society of Great Britain, Vol. li, p. 119, Prof. H. G. Seeley, F. R. S., gives a synopsis of the characters of the genera and families of the Sauropterygia which are found in the beds of the Jurassic and Cretaceous systems. He points out the fundamental character of the difference between the structure of the shoulder girdle in the Elasmosauridæ and Plesiosauridæ first insisted on by Cope, and regards the differences between the paradiapophyses of those families as of family significance instead of generic, as held originally by Cope. The previous paper of Prof. Seeley on the structure of the shoulder girdle of the European genera threw great light on the systematic of this order of reptiles, and the present paper increases that knowledge and establishes the taxonomy on a firm basis. He places the long necked and short necked genera in different families, a proceeding which may require revision, although of the generic value of such groups there can be no doubt. The genera with divided cervical ribs are Plesiosaurus, Eretmosaurus, Rhomaleosaurus and Pliosaurus. Those with simple cervical ribs are Polyptychoden, Polycotylus, Cimoliasaurus, Stereosaurus, Mauisaurus, Elasmosaurus, Trinacromerum, Colymbosaurus, Muraenosaurus, Cryptoclidus. Thaumatosaurus he thinks is identical with Pliosaurus.

Dana on the Huronian System.—In the Amer. Journ. Sci. Arts, Prof. Dana makes some rational observations on the recent proposition of certain members of the U. S. Geological Survey to add a fifth division to the geological system of time under the name of the Algonkian era. He says: "The Algonkian (or Agnotozoic) beds belong either to the Archean or to the Paleozoic. The Archean division of geological time is of the same category with the Paleozoic, Mesozoic and Cenozoic; all are grand divisions based on the progress of life, and they include together its complete range. There is no room for another grand division between Archean and Paleozoic any more than for one between Paleozoic and Mesozoic. The so-called Algonkian is not above Cambrian in grade, it being based on series of rocks. Its true biological relations are in doubt, because fossils representing the supposed life of the period are unknown or imperfectly so. The discovery in any rocks so-called, of Trilobites, Crustaceans, Molluscs, Brachiopods or Crinoids, whatever the species, would entitle such rocks to a place in the Paleozoic, and either within the Cambrian group or below it. Walcott has already reported such fossils from the beds at the bottom of the Colorado canyon referred by him to the Algonkian, namely: besides a Stromatopoid, a small Patella-like or Discina-like shell, a fragment of a Trilobite and a small Hyolithes, forms which make the beds Paleozoic beyond question" (p. 460, June No., 1892).

Geological News.—Mr. Whitman Cross, in a late number of the Amer. Journ. Sci. Arts, endeavors to set forth the state of our knowledge of the stratigraphy and incidentally paleontology of the Laramie formation. He thinks it probable that the alleged Laramie includes several formations, which are distinguished by unconformity and lithological diversity. He gives a very thorough review of the literature of the subject.

—The appropriation for the U. S. Geological Survey was much reduced by the last Congress. Nearly forty members of the present force will be asked to resign. Washington dispatches to the newspaper press state that this list includes three $4000 geologists, one $3000 geologist, two $2400 geologists, two $2000 geologists, one $2000 chemist, two $2500 geographers, one $2000 topographer and one $3000 officer, classed as a general assistant. These are dropped altogether, as is also vertebrate paleontology. Twenty-six other employees will also have to submit to a reduction of pay. Major Powell, Chief Director of the Bureau, says that six of the scientists thus summarily disposed of have volunteered to stay and complete the work they are employed upon without present compensation, and seventeen others have already secured professorships in various colleges and other educational institutions. He adds that the reduction of force will compel him to drop some branches of the work upon which he has been engaged, but he believes he will be able to struggle along until Congress reassembles in December.

—The northwestern division of the Geological Survey of Texas is under charge of Mr. W. F. Cummins. Mr. Cummins' party has explored during the present season the formations which appear along the eastern border of the Staked Plains, and is at present examining the Permian formation along the waters of the Red River.